



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, DC 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/054,380	04/02/98	MOSTAFAZADEH	S

MM21/0121

EDWARD C KWOK  
SKJERVEN MORRILL MACPHERSON FRANKLIN &  
FRIEL  
25 METRO DRIVE SUITE 700  
SAN JOSE CA 95110-1349

EXAMINER

DUONG, H

ART UNIT	PAPER NUMBER
2822	2

DATE MAILED: 01/21/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

**Office Action Summary**

Application No. 09/054,380	Applicant(s) Shahram et al.
Examiner Hung Duong	Group Art Unit 2822



Responsive to communication(s) filed on \_\_\_\_\_.

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

**Disposition of Claims**

Claim(s) 1-10 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 1-10 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims \_\_\_\_\_ are subject to restriction or election requirement.

**Application Papers**

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_.

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 2822

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Mizobe (Japan 403166756A).

Regarding claims 1-4, and 8, Mizobe discloses an integrated circuit package, a lead frame comprising: die attach platform 304; a plurality of elongated leads 301 which are electrically isolated from the die attach platform 304; and a first bus bar 303 which is electrically isolated from the die attach platform 304 and the plurality of elongated leads 301. The lead frame further comprises a second bus bar 306 which is electrically isolated from the die attach platform 304. An integrated circuit chip 401 mounted on the die attach platform, the integrated circuit chip having a plurality of power I/O pads 402, a plurality of ground I/O pads 403, and a plurality of signal I/O pads (see Mizobe figures 3 & 4).

Art Unit: 2822

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-7, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Mizobe as applied to claim 3 above, and further in view of Barrow (US Pat. 5,796,589).

Regarding claims 5-7, and 10, Mizobe teach all the subject matter claimed except for the mask layer formed on the second surface of the lead frame, the mask layer defining a plurality of openings exposing selected portions of the plurality of leads; and a plurality of solder balls, each of the plurality of solder balls being connected to one of the plurality of leads through one of the plurality of openings, the mask layer comprises a solder mask, the mask layer comprises a plated layer 20, the material of the plating layer being resistant to solder flow. However, Barrow discloses the mask layer 42, solder mask 40, plurality of solder balls 36 (See Barrow figures 2 & 4). It would have been obvious, at the time the invention was made, to a person having skill in the art to form the mask layer, solder mask, plurality of solder balls as described of Mizobe 's device such as taught by Barrow to improve the ensure locating the vias within the solder pads optimizes the routing space of the substrate and increases the routing density of the package.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizobe.

Regarding claim 9, Mizobe teach all the subject matter claimed except for the IC

Art Unit: 2822

chip includes a plurality of I/O pads for signal communications and a portion of the plurality of the I/O pads require a common signal. However, the IC chip includes a plurality of I/O pads for signal communications and a portion of the plurality of the I/O pads require a common signal is well known in the art.

***Conclusion***

60. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Imamura et al. (US Pat 5,389,817) teach semiconductor device having a flat jumper lead.

Nakamura (JP 404129250A) teaches thin type hybrid integrated circuit substrate.

Kawakami (JP 405121631A) teaches lead frame.

Otsuka (JP 406132419A) teaches power supply interconnection and grounding interconnection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Duong whose telephone number is (703) 308-4889. The examiner can normally be reached on M-F from 8:30 to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Toby Brown, can be reached on (703) 308-4083. The fax phone number for this Group is (703)308- 5841 .

Art Unit: 2822

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703)308-0956 .

HVD

1/15/99



Peter Toby Brown  
Supervisory Patent Examiner  
Technology Center 2800